

Crossocerus italicus de Beaumont, 1959 in the Southern Alps with a key to the species of the *Crossocerus elongatulus* species group (Hymenoptera, Crabronidae)

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Zusammenfassung

Hans-Joachim Jacobs, Christian Schmid-Egger: **Erstnachweis von *Crossocerus italicus* de Beaumont, 1959 in den Südalpen mit einem Bestimmungsschlüssel für die Arten der *Crossocerus elongatulus* Gruppe (Hymenoptera, Crabronidae).** *Crossocerus italicus* wird erstmalig in den südlichen Alpen nachgewiesen. Für die Arten der *Crossocerus elongatulus*-Gruppe wird ein neuer Bestimmungsschlüssel präsentiert.

Summary

Crossocerus italicus was found in the Southern Alps (Switzerland, Italy and France) for the first time. A key to the species of the *Crossocerus elongatulus* group is given.

Introduction

Crossocerus italicus was described by de Beaumont (1959) with five females from the Gran Sasso massif in Central Italy. The male was later described by Leclercq (2007) from Greece. Christian Schmid-Egger found the species in 1990 for the first time in the Swiss Alps. Later records from French Alps confirmed the occurrence of the species in the Alps.

Crossocerus italicus belongs to the *elongatulus*-species group, together with *elongatulus* and *distinguendus*. The whole group is difficult to identify by present keys, e.g. with the key in Bitsch & Leclercq (1993 and 2009). The latter publication already includes the male of *italicus*. Especially the identification of females is problematic because of a wide variability of structural characters as puncture and wrinkles as considered in most keys. In our opinion, there is a need to take more constant characters into account for a new identification key. So, the most important aim of the present paper is to give an updated key of the *elongatulus*-species group, what is given below.

Material examined of *Crossocerus italicus*

- **Italy, Abruzzi:** L'Aquila 17 km NE Gran Sasso d'Italia, Campo Imperatore Umg. Monte de Scindarella 1700-2100 m NN, 1 male, 1 female 19.-20.07.1991 leg. S. Blank, coll. Schmid-Egger;
- **Italy, Alps:** Piemonte, 14 km SW Bormio, Eita 1800-2000 m NN, 46,38°N 10,24°E 09.07.2006 1 female leg/coll. Schmid-Egger.
- **Switzerland, Alps:** Ticinio, Robieci/Valle Maggia 2200 m NN, 1 male 02.07.1990 leg./coll Schmid-Eg-

ger; Valais, Simplon-Pass, 2100 m NN, 30.07.1997 1 male leg/coll. W. Arens; Vala, An der Matte, 1 male 12.08.1993 leg./coll. W. Arens.

- **France, Alpes Maritimes:** Col de Cayolle S 44,254°N 6,744°E 2300 m NN 2 males, 1 female 14.07.2010; St. Dalmas-Valdebloure, Millefontes 2030 m NN 44,09N 7,18E 1 male 1 female 15.07.2009; 4 males 1 female 13.07.2010; Tende W Valmasque 44,105°N 7,448°E 2200 m NN, 2 males 09.07.2010; all leg/coll. Schmid-Egger.

Distribution of *Crossocerus italicus*

The species is known from Greece (Leclercq 2007: with the following locations: Akhais: Khelmos; Lakmos: Peristetsi; Pindos: Astraka; Fokidos: Parnassus; Killini Oros) and from the Apenin mountains in Central Italy. In both countries it was collected at altitudes between 1.500 and 2.500 m NN (Bitsch & Leclercq 2009). It is new to the fauna of the Alps and here recorded from the southwestern Alps (France) and southern part of the Central Alps (Switzerland, Italy). In the Alps it was collected between 1800 and 2300 m NN. *Crossocerus italicus* can also be expected from other higher Mountains in southern Europe.

Crossocerus distinguendus and *elongatulus* are both widespread in Europe and may also occur in higher altitudes of the Alps (Bitsch & Leclercq 2009).

Habitats and ecology

The species was collected by Christian Schmid-Egger in alpine grasslands above the alpine tree line. Most records were collected by yellow pan traps, others by net sweeping in the low vegetation. The cuckoo wasp

Philoctetes putoni (Du Buysson, 1892) (Chrysididae) was common on all finding places of *Crossocerus italicus* in the southern French Alps and is probable a parasite of the latter (Schmid-Egger 2011).

Key to the females of the *Crossocerus elongatulus*-group

1. Pronotum laterally (in dorsal view) with rectangular angle, corners connected with a sharp edge parallel to hindmargin of pronotum (fig. 1). Shiny space in lower frons between eyes small, shorter than length of scape, in upper third laterally not reaching eye margin (between eye margin and shiny space is a triangular punctured area). Mandible black, at most with reddish shimmer. Fovea (between eye and lateral ocellus) narrow, flat (not elevated over the vertex area), dull, barley limited and sometimes with small punctures. Medial part of apical clypeal margin ± regular arched, swollen, lateral edge very small. Propodeum see fig. 2. *italicus* de Beaumont, 1959
- Pronotum laterally (in dorsal view) with obtuse angle or rounded (fig. 3, 4), with or without such a edge. Shiny space in lower frons larger, laterally reaching inner eye margin. Mandible in most specimens apically reddish or yellow. Fovae larger and more shiny, without punctures (fig. 5). Clypeus ± triangular, with marked teeth, front part not swollen. **2**
2. Pronotum laterally (in dorsal view) with obtuse angle, corners connected with a sharp edge, parallel to hindmargin of pronotum (fig. 4). Back of propodeum laterally limited by a simple or indistinct keel. Fovae convex, distinctly elevated above vertex area (fig. 5). Shiny space in lower frons between eyes as long as scape, laterally not extended versus vertex. Mesoscutum with finer punctures, interspaces smooth and shiny (fig. 4) *elongatulus* (Vander Linden, 1829)
- Pronotum laterally (in dorsal view) rounded, corners connected with a rounded bulge (fig. 3). Back of propodeum laterally limited by marked keel with short vertical keels forming little holes. Fovae flat, not elevated above vertex area. Shiny space in lower frons between eyes longer than scape, laterally extended versus vertex. Mesoscutum with coarser punctures, mostly dull, with distinct microstructure between the points (fig. 3) *distinguendus* (A. Morawitz, 1866)



Fig. 1: *Crossocerus italicus* ♀, thorax dorsal. (photo: H.-J. Jacobs)

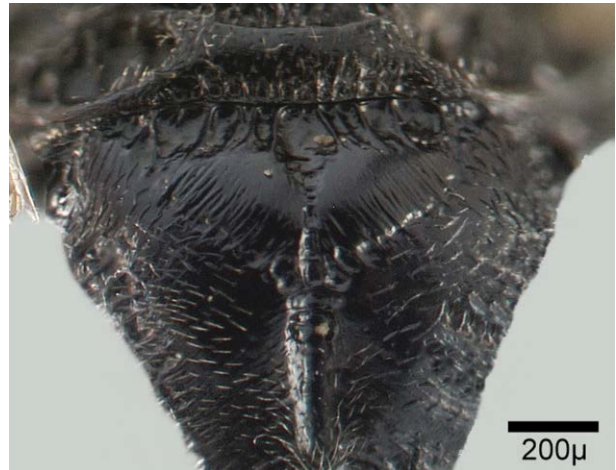


Fig. 2: *Crossocerus italicus* ♀, propodeum dorsal. (photo: H.-J. Jacobs)



fig. 3: *Crossocerus distinguendus* ♀, thorax dorsal. (photo: H.-J. Jacobs)

Key to the males of the *Crossocerus elongatulus*-group

1. Midfemur baso-ventrally protruding in an obtuse angle (fig. 6). Fovea (between ocellus and compound eye on vertex) slightly convex, elevated over the vertex area, shiny. *elongatulus* (Vander Linden, 1829)
- Midfemur baso-ventrally without angle, gradually widened. Foveae flat, at the same altitude as the vertex area, shiny or dull 2
2. Forefemur dorsally at least in basal part with yellow band, underside flat and with long setae, much longer than apical diameter of foretibia. Fovea flat, broad, markedly limited, smooth and shiny, without punctures. Metapleuron smooth, at the most weakly striate in the upper part. Pronotum laterally (in dorsal view) rounded, corners connected with rounded bulge parallel to hindmargin of pronotum *distinguendus* (A. Morawitz, 1866)
- Forefemur dorsally black, at the underside ± rounded, with short hairs, shorter than apical diameter of foretibia. Foveae flat, narrow, dull, barely limited and sometimes with small punctures. Metapleuron usually markedly striate in front part (especially on prepectus and after the episternal sulcus). Pronotum laterally (in dorsal view) with rectangular angle, corners connected with a sharp edge parallel to hindmargin of pronotum. *italicus* de Beaumont, 1959

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Fig. 4: *Crossocerus elongatulus* ♀, thorax dorsal. (photo: H.-J. Jacobs)



Fig. 5: *Crossocerus elongatulus* ♀, head dorsal. (photo: H.-J. Jacobs)



Fig. 6: *Crossocerus elongatulus* ♂, midleg. (photo: H.-J. Jacobs)

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